20100207 1205380T

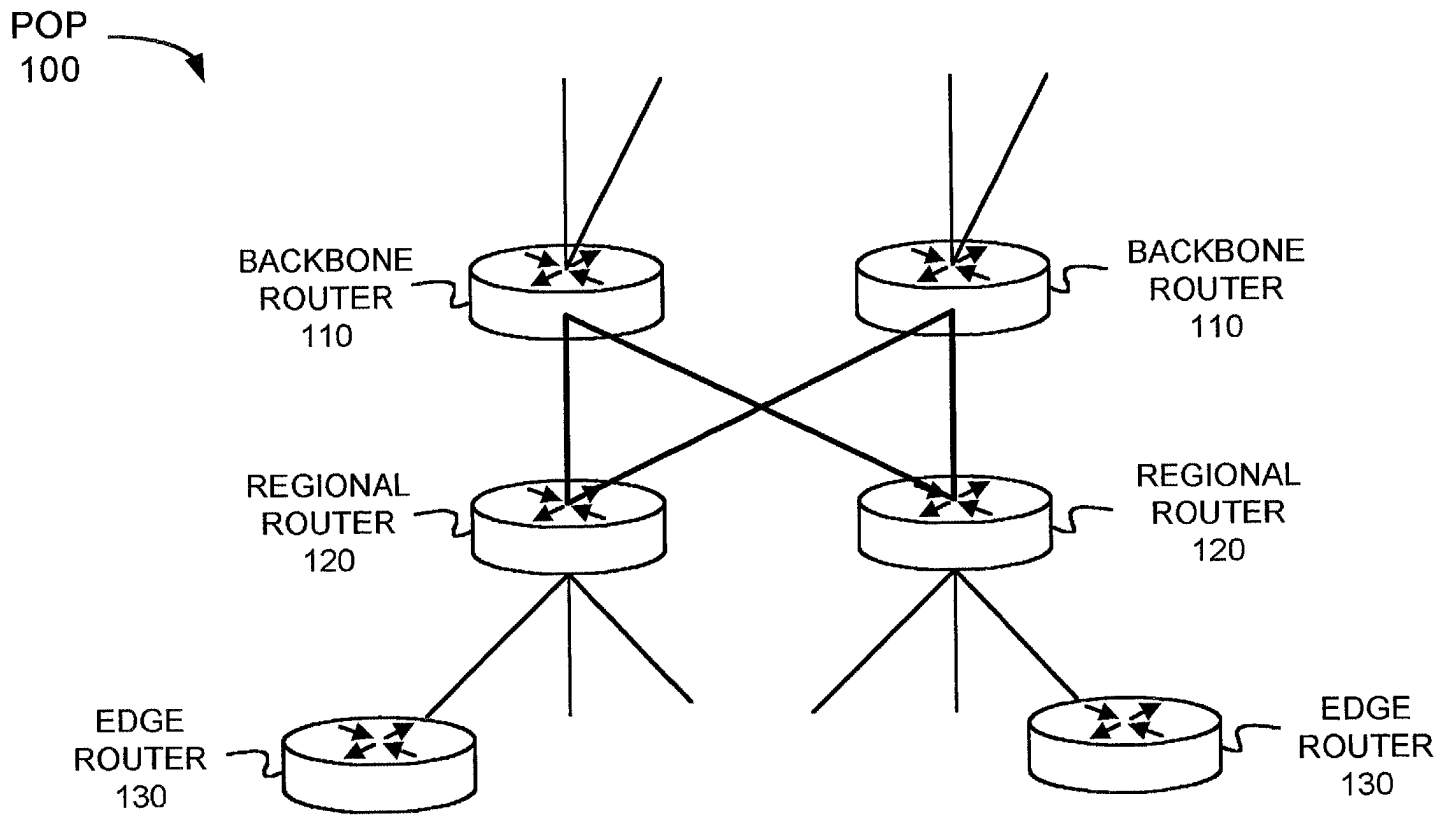

FIG. 1 (PRIOR ART)

20T0E0" T20S80DT

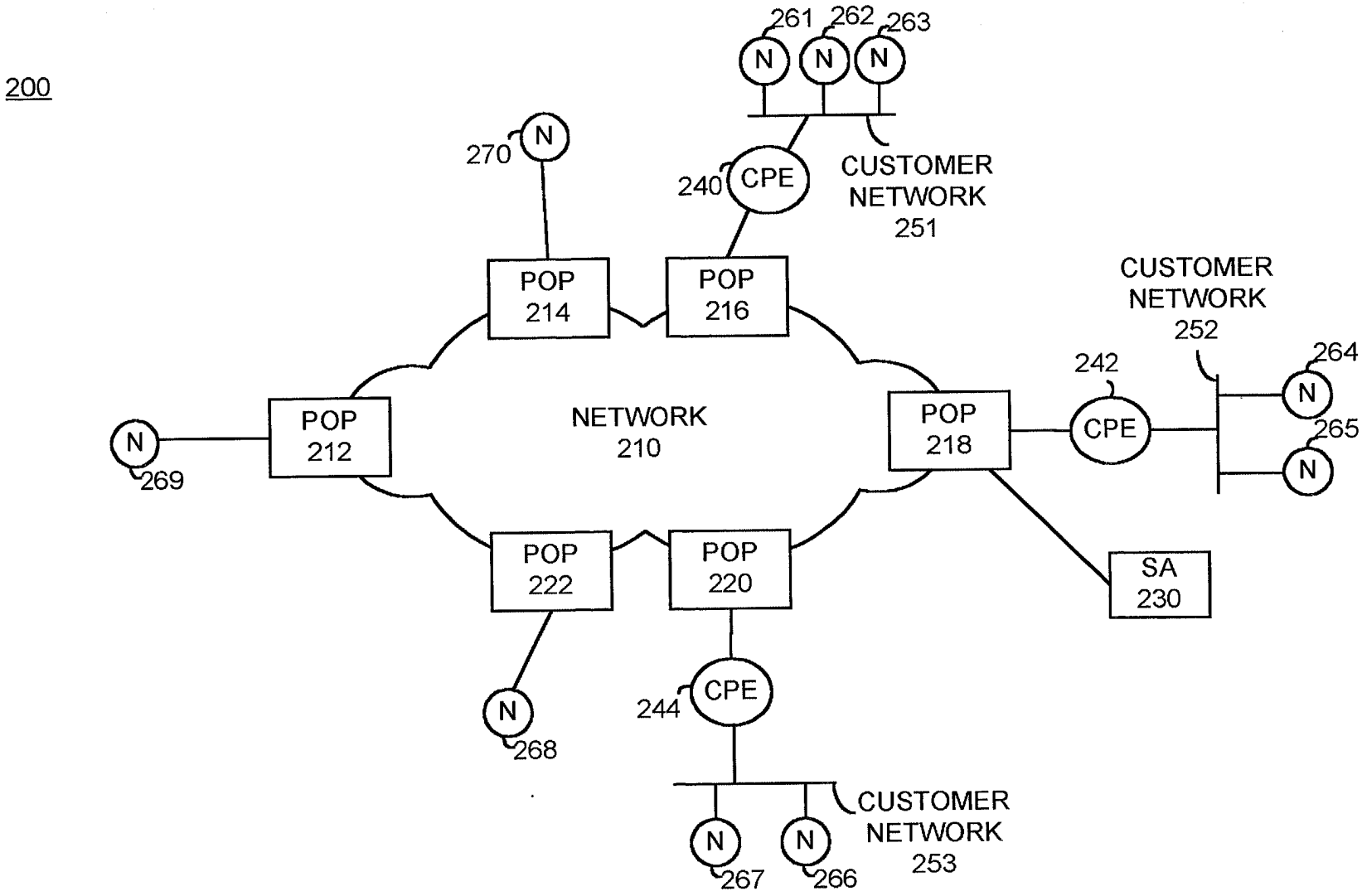

FIG. 2

20T0C0" T20S80O1

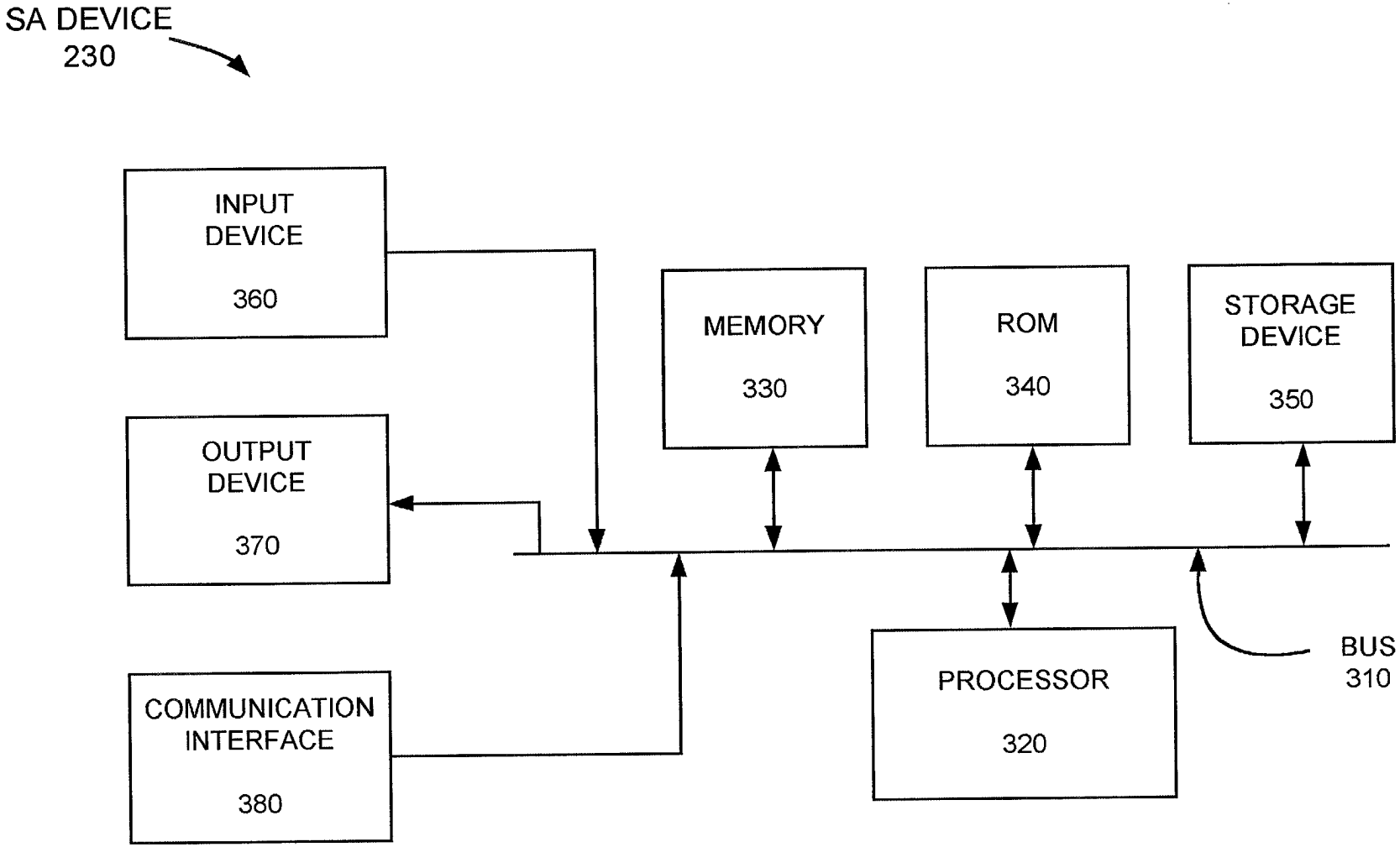

FIG. 3

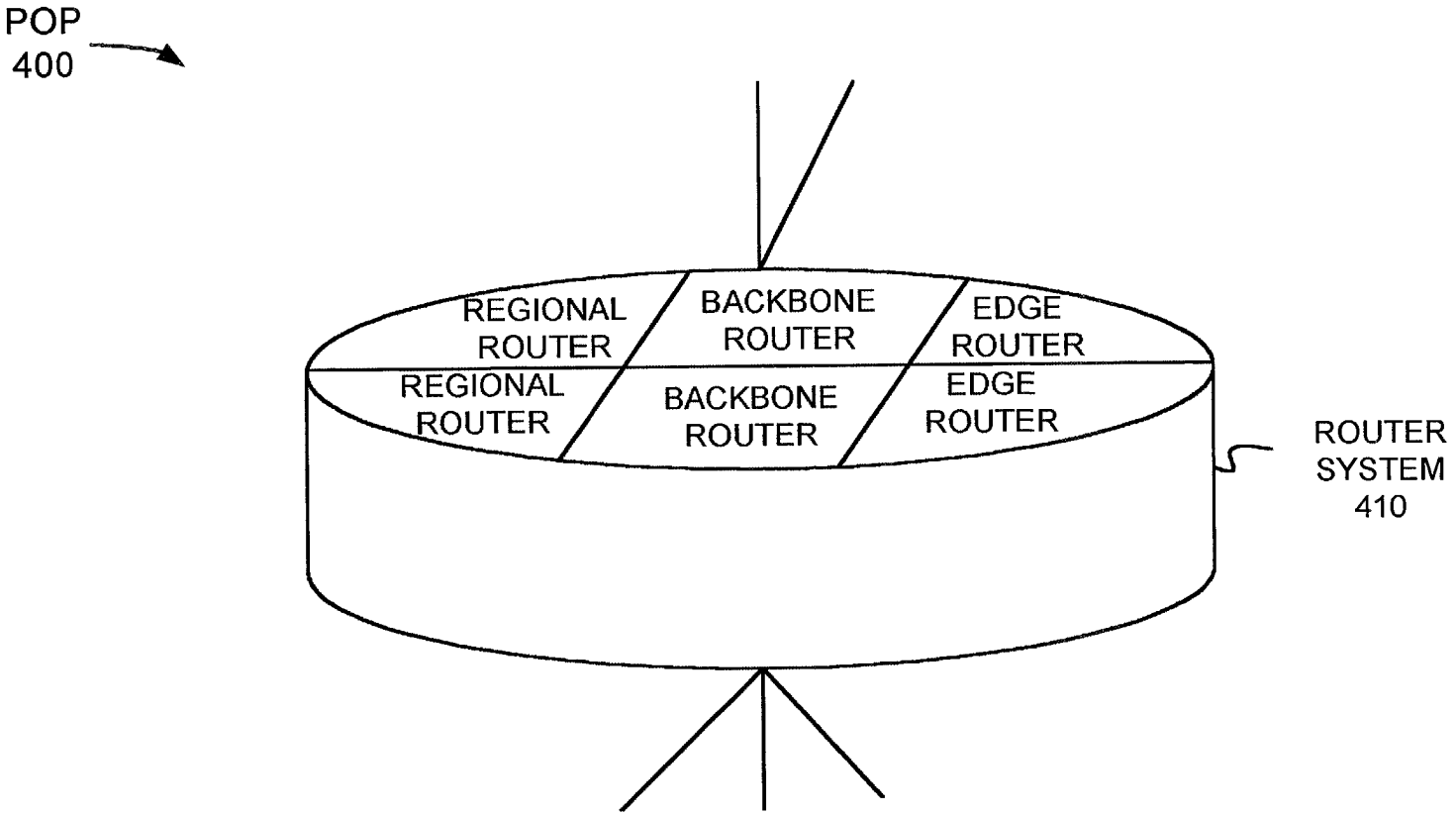
POP
400
REGIONAL
ROUTER
BACKBONE
ROUTER
EDGE
ROUTER
REGIONAL
ROUTER
BACKBONE
ROUTER
EDGE
ROUTER
ROUTER
SYSTEM
410

FIG. 4

20100328 T2053800T

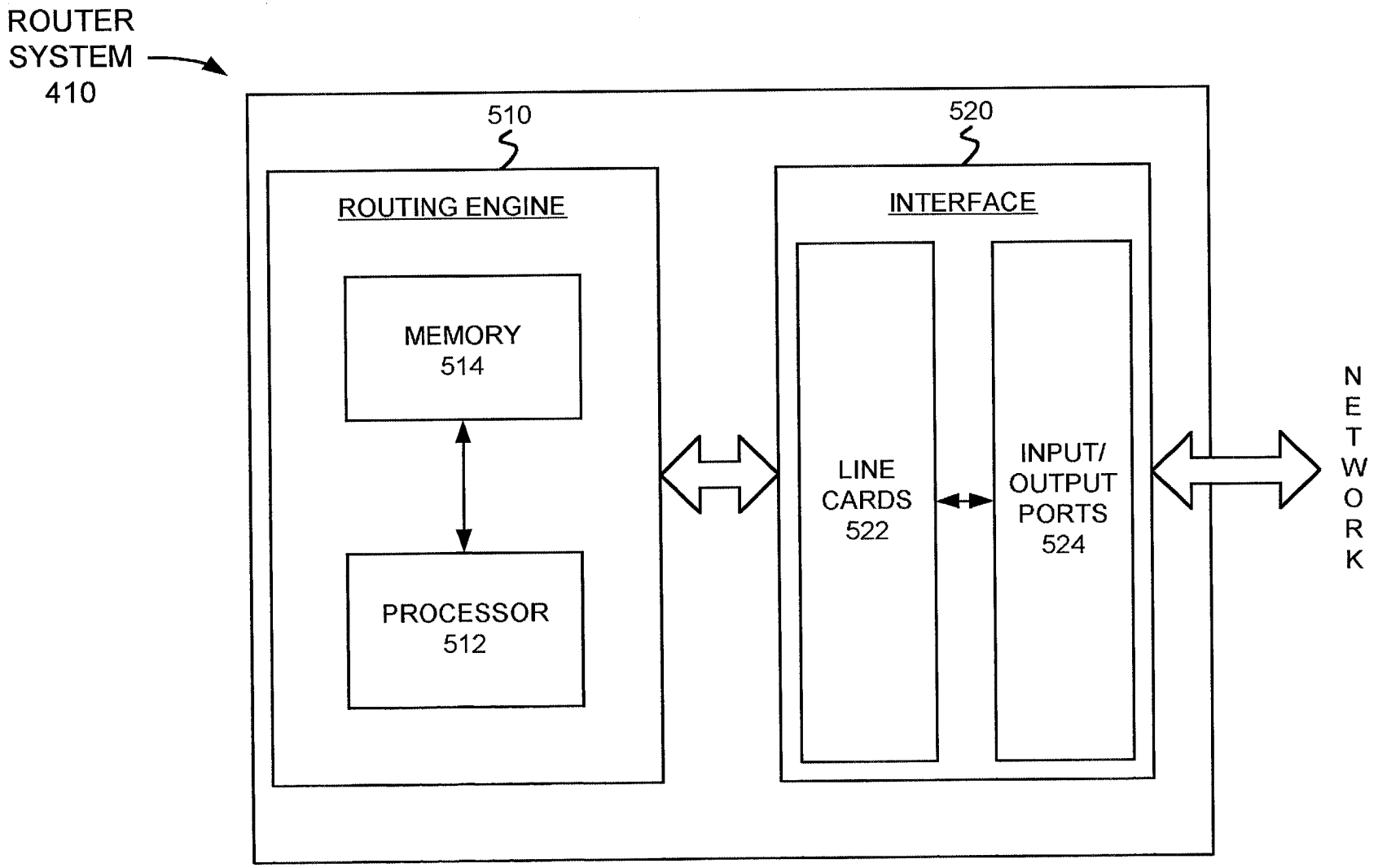

FIG. 5

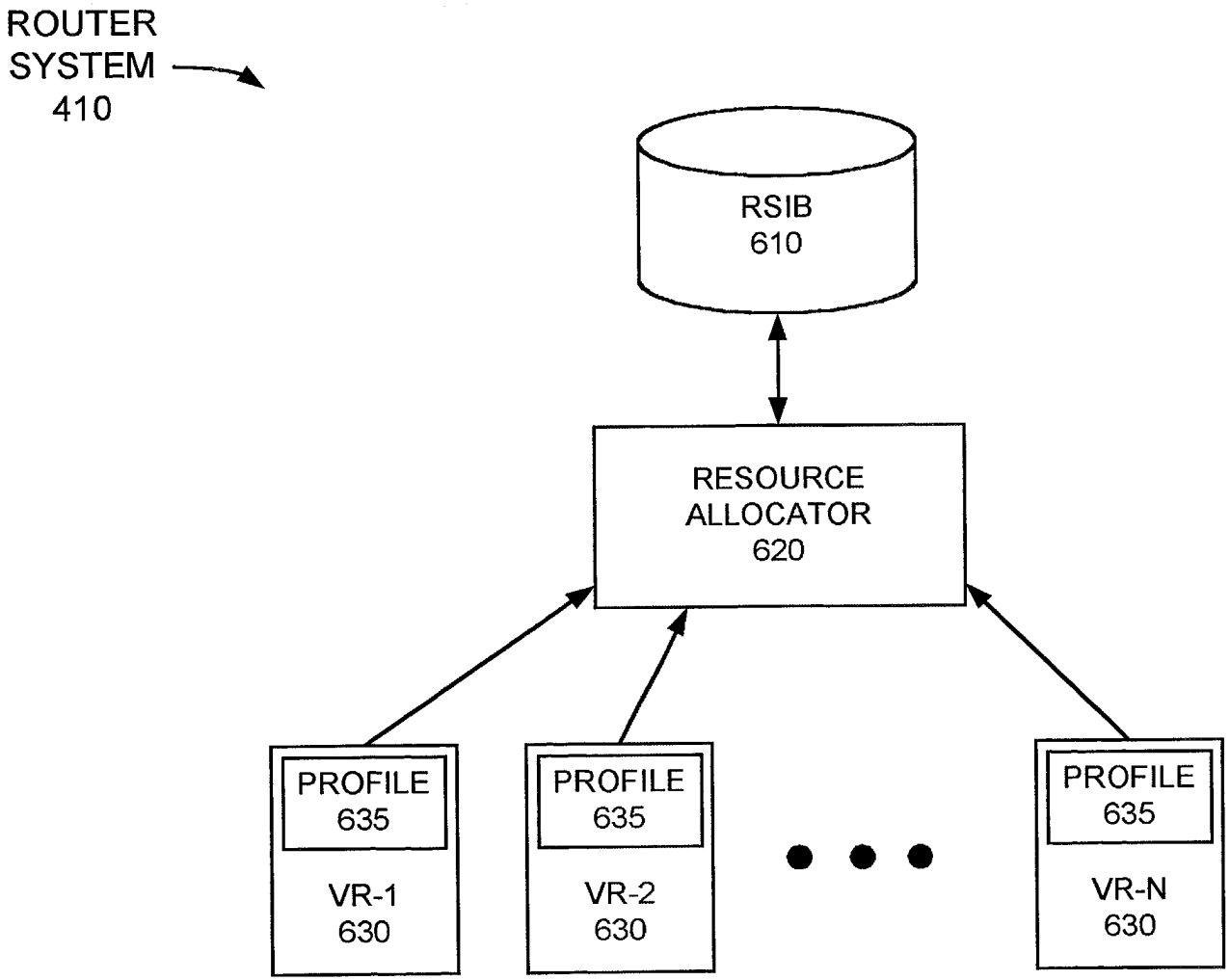
ROUTER
SYSTEM
410
RSIB
610
RESOURCE
ALLOCATOR
620
PROFILE
635
VR-1
630
PROFILE
635
VR-2
630
PROFILE
635
VR-N
630

FIG. 6

RSIB
610

	ID	INTERFACE BANDWIDTH	ROUTING TABLE SIZE	ROUTING TABLE POINTER	FORWARDING TABLE SIZE	FORWARDING TABLE POINTER	INTERNAL INTERFACE	INTERNAL INTERFACE ADDRESS
VIRTUAL ROUTER 1	VR-CORE-1	PORT 1: 2.5GBPS, PORT 2: 10GBPS, ... PORT M: 2.5GBPS	4 MB	ROUTING TABLE MEMORY ENTRY ADDRESS	2 MB	FORWARDING TABLE MEMORY ENTRY ADDRESS	VR-CORE-VI-1	10.1.1.1
VIRTUAL ROUTER 2	VR-CORE-2	PORT 1: 1.5GBPS, PORT 2: 2GBPS, ... PORT M: 1.5GBPS	4 MB	ROUTING TABLE MEMORY ENTRY ADDRESS	2 MB	FORWARDING TABLE MEMORY ENTRY ADDRESS	VR-CORE-VI-2	10.1.1.2
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
VIRTUAL ROUTER N	VR-CORE-N	PORT 1: 2.5GBPS, PORT 2: 5GBPS, ... PORT M: 2.5GBPS	4 MB	ROUTING TABLE MEMORY ENTRY ADDRESS	2 MB	FORWARDING TABLE MEMORY ENTRY ADDRESS	VR-CORE-VI-N	10.1.1.9

FIG. 7

20T0E0" TE0S80DT

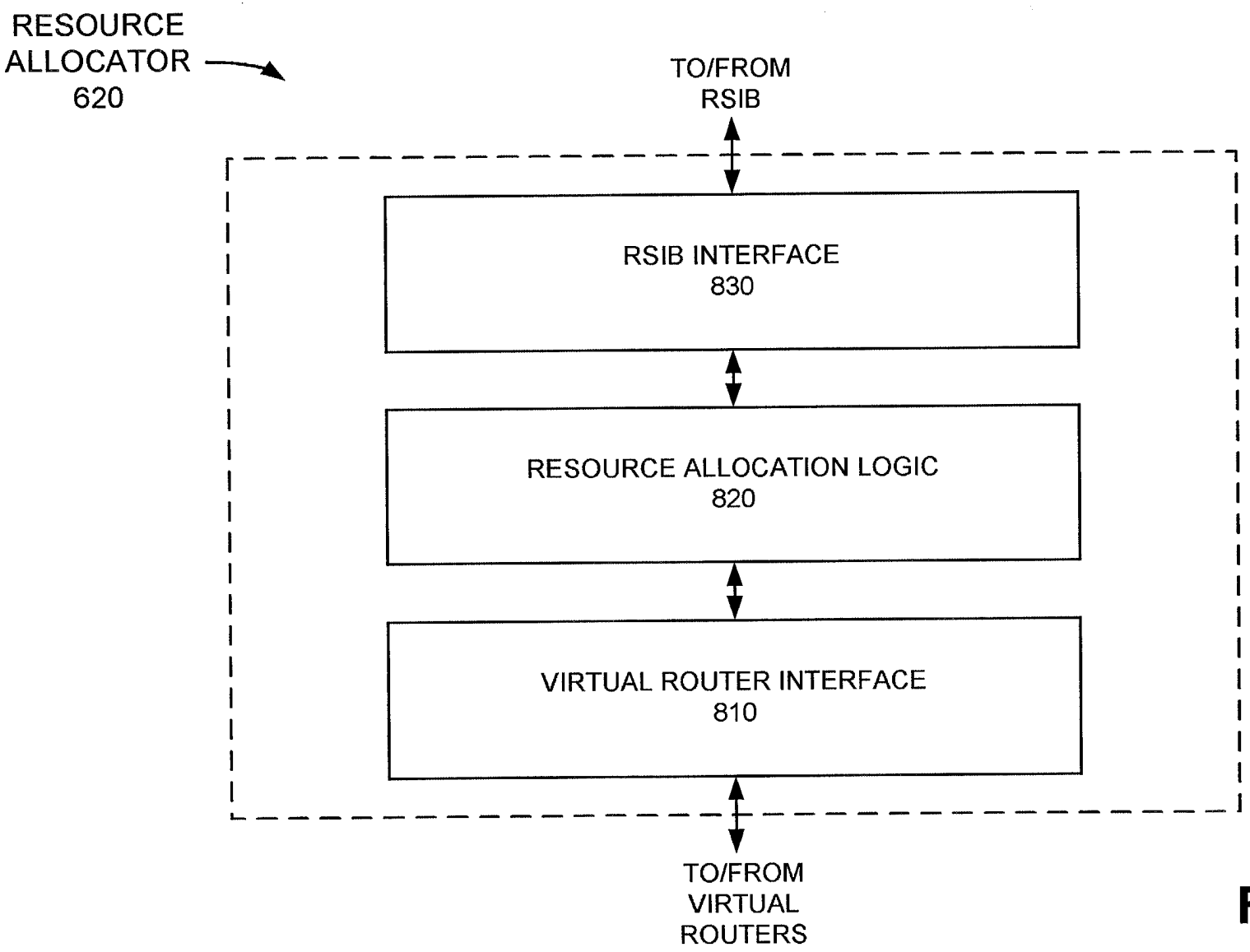

FIG. 8

VIRTUAL ROUTER PROFILE 635

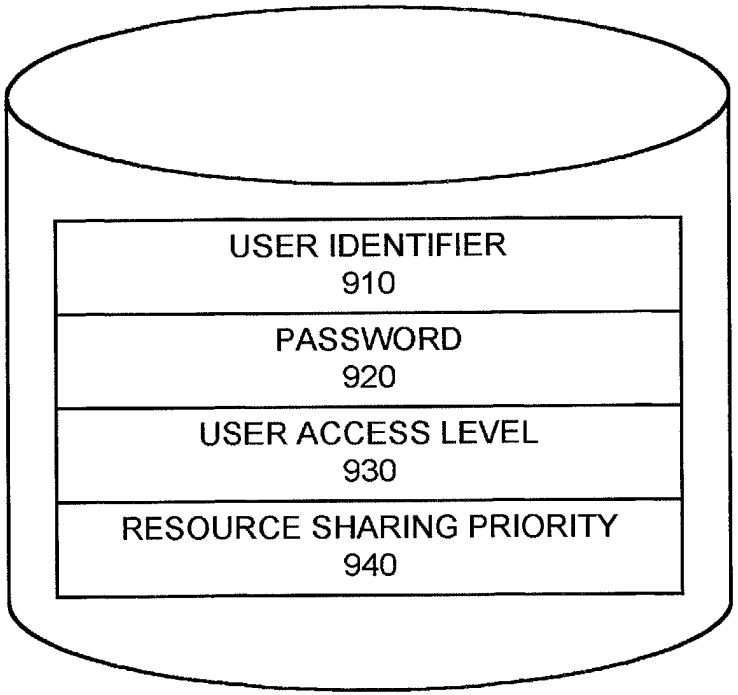

FIG. 9

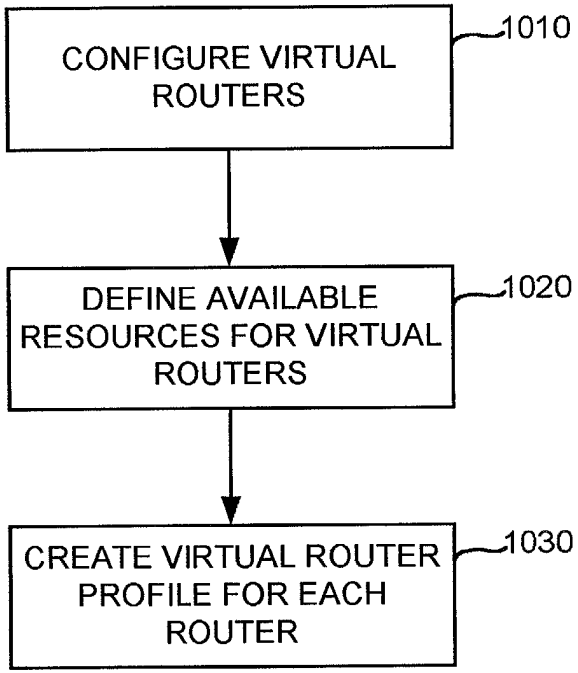
CONFIGURE VIRTUAL ROUTERS
1010
DEFINE AVAILABLE RESOURCES FOR VIRTUAL ROUTERS
1020
CREATE VIRTUAL ROUTER PROFILE FOR EACH ROUTER
1030

FIG. 10

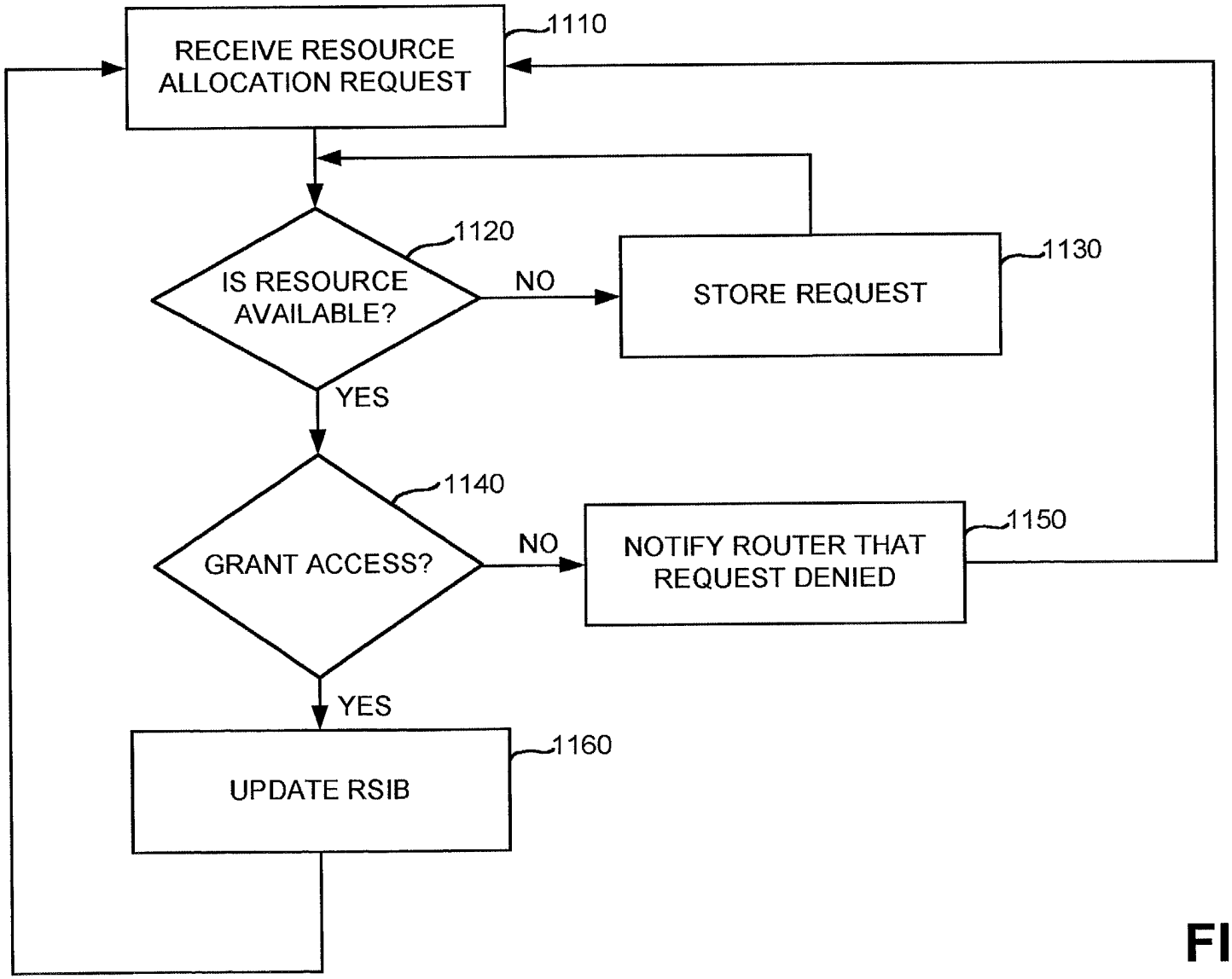
RECEIVE RESOURCE ALLOCATION REQUEST
1110
IS RESOURCE AVAILABLE?
1120
NO
STORE REQUEST
1130
YES
GRANT ACCESS?
1140
NO
NOTIFY ROUTER THAT REQUEST DENIED
1150
YES
UPDATE RSIB
1160

FIG. 11

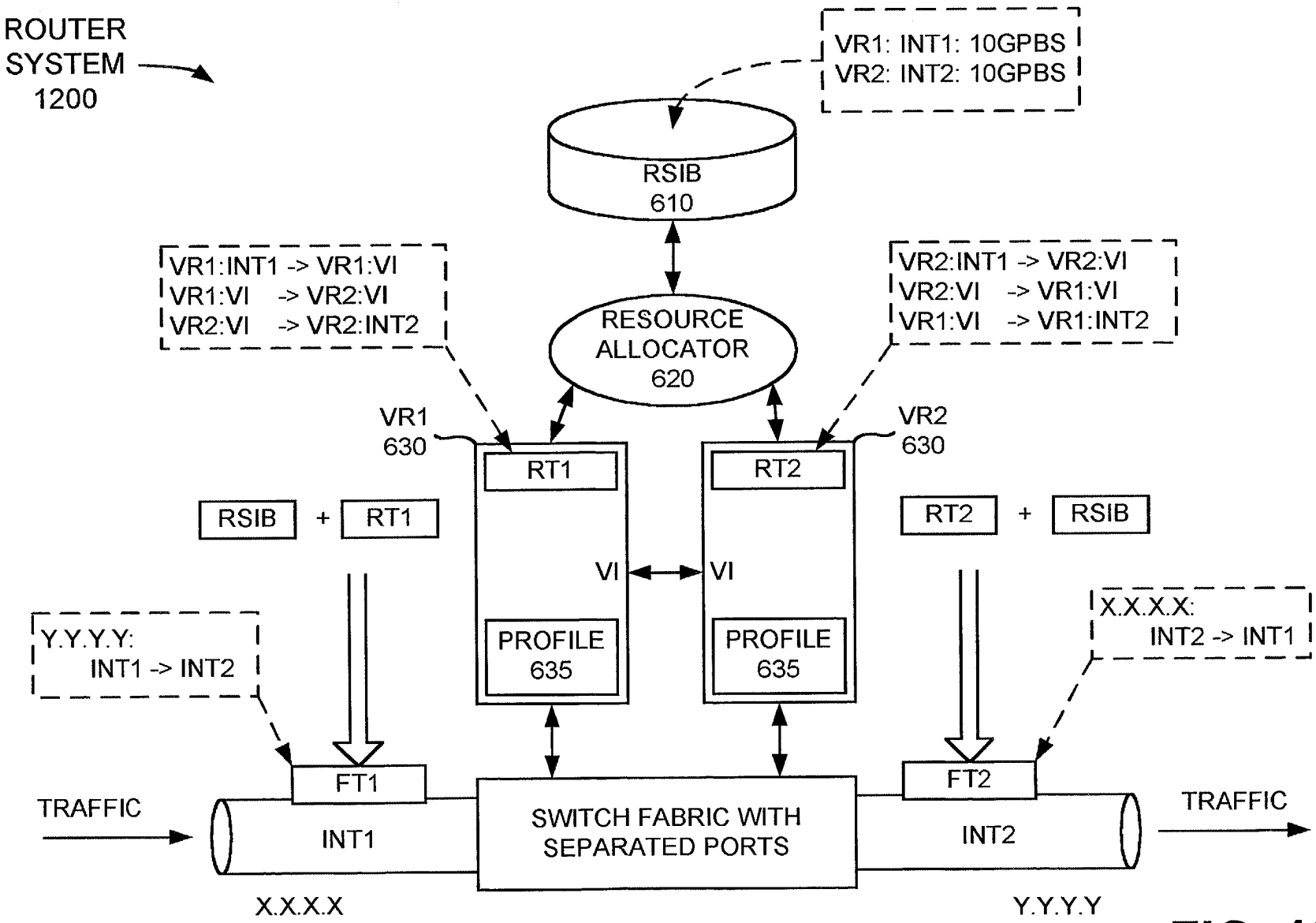
ROUTER SYSTEM 1200
VR1: INT1: 10GPBS
VR2: INT2: 10GPBS
RSIB 610
RESOURCE ALLOCATOR 620
VR1:INT1 -> VR1:VI
VR1:VI -> VR2:VI
VR2:VI -> VR2:INT2
VR2:INT1 -> VR2:VI
VR2:VI -> VR1:VI
VR1:VI -> VR1:INT2
VR1 630
VR2 630
RT1
RT2
RSIB + RT1
RT2 + RSIB
VI
VI
PROFILE 635
PROFILE 635
Y.Y.Y.Y: INT1 -> INT2
X.X.X.X: INT2 -> INT1
FT1
FT2
TRAFFIC
INT1
SWITCH FABRIC WITH SEPARATED PORTS
INT2
TRAFFIC
X.X.X.X
Y.Y.Y.Y

FIG. 12

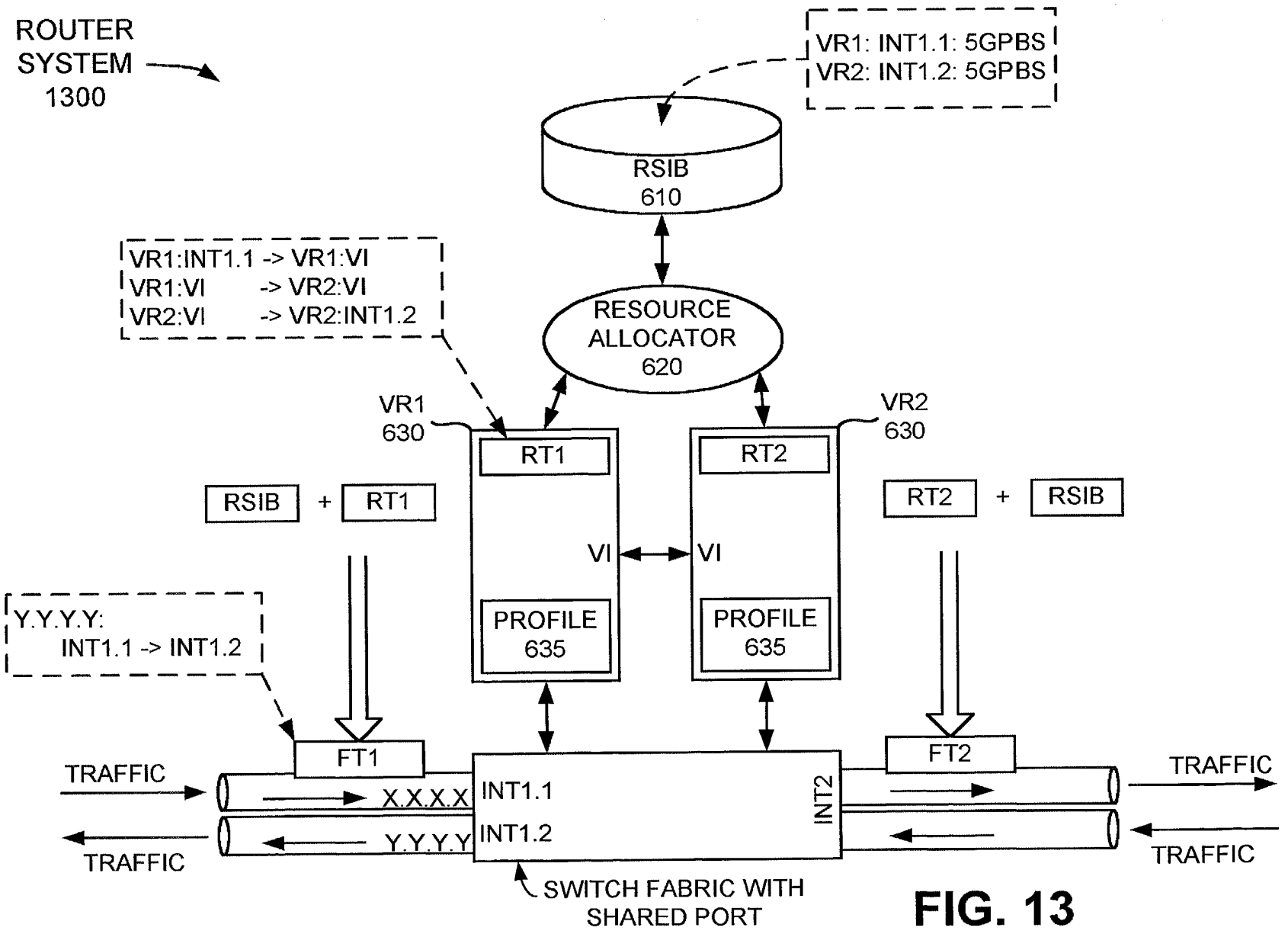
ROUTER SYSTEM 1300
VR1: INT1.1: 5GPBS
VR2: INT1.2: 5GPBS
RSIB 610
VR1:INT1.1 -> VR1:VI
VR1:VI -> VR2:VI
VR2:VI -> VR2:INT1.2
RESOURCE ALLOCATOR 620
VR1 630
VR2 630
RT1
RT2
RSIB + RT1
RT2 + RSIB
VI
VI
PROFILE 635
PROFILE 635
Y.Y.Y.Y: INT1.1 -> INT1.2
FT1
FT2
TRAFFIC
TRAFFIC
X.X.X.X
Y.Y.Y.Y
INT1.1
INT1.2
INT2
TRAFFIC
TRAFFIC
SWITCH FABRIC WITH SHARED PORT

FIG. 13